

U.S. Serial No. 08/753,750
Preliminary Amendment

Please amend the application as shown below prior to calculation of fees and examination of the Continued Prosecution Application.

IN THE CLAIMS

Please cancel claims 1- 4, 8, 10, 12, 14, 20 and 28 without prejudice or disclaimer, and add new claims 30 to 51 as shown below.

Sub 2' 30. An isolated polynucleotide comprising a polynucleotide having at least 80% identity to a member selected from the group consisting of:

- (a) a polynucleotide encoding a TbpA polypeptide of *P. haemolytica* comprising an amino acid sequence as set forth in SEQ ID NO:2;
- (b) a polynucleotide encoding a TbpA polypeptide of *P. haemolytica* comprising amino acid 1 to amino acid 930 as set forth in SEQ ID NO:2;
- (c) a polynucleotide encoding a TbpA polypeptide of *P. haemolytica* comprising amino acid 29 to amino acid 930 as set forth in SEQ ID NO:2; and
- (d) a polynucleotide which is complementary to the polynucleotide of (a), (b) or (c).

2' 31. The polynucleotide of claim 30, wherein the polynucleotide is DNA.

3' 32. The polynucleotide of claim 30, wherein the polynucleotide is RNA.

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~~4~~¹₃₅. The polynucleotide of claim ~~30~~¹, wherein the polynucleotide is genomic DNA.

~~5~~¹₃₆. The polynucleotide of claim ~~30~~¹, comprising the sequence as set forth in SEQ ID NO:1 from nucleotide 1 to nucleotide 2790.

~~6~~¹₃₇. The polynucleotide of claim ~~30~~¹, comprising the sequence as set forth in SEQ ID NO:1 from nucleotide 85 to nucleotide 2790.

~~7~~²₃₈. A vector comprising the DNA of claim ~~31~~².

~~8~~⁷₃₉. A host cell comprising the vector of claim ~~30~~⁷.

~~9~~⁸₄₀. A process for producing a polypeptide comprising: expressing from the host cell of claim ~~37~~⁸ the polypeptide encoded by said DNA.

~~10~~⁷₄₁. A process for producing a cell which expresses a TbpA polypeptide comprising transfecting the cell with the vector of claim ~~30~~⁷.

40. A method for producing a polypeptide in a host cell comprising the steps of:

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(a) incubating a host containing a heterologous nucleic acid molecule whose nucleotide sequence is identical to the sequence of the isolated polynucleotide of claim 30, under conditions where said heterologous nucleic acid molecule is expressed to produce said protein and

(b) isolating said protein.

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41. A compound which specifically inhibits expression of the polynucleotide of claim 30.

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42. A diagnostic process comprising determining, in a sample derived from a host organism, the presence or absence of a nucleic acid sequence according to claim 30.

43. An isolated nucleic acid molecule encoding a homolog of any of the polynucleotide of claim 30. wherein said nucleic acid molecule is produced by a process comprising the steps of:

(a) screening a genomic DNA library using as a probe a target sequence defined by the SEQ ID NO: 1, or fragments thereof;

(b) identifying members of said library which contain sequences that hybridize to said target sequence; and

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(c) isolating an intact coding sequence from one or more of said members identified in step (b).

44. An isolated DNA molecule encoding a homolog of the polynucleotide of claim 30, wherein said polynucleotide is produced by a process comprising the steps of:

- (a) isolating mRNA, DNA, or cDNA produced from a *P. haemolytica* organism;
- (b) amplifying nucleic acid molecules whose nucleotide sequence is homologous to amplification primers derived from said fragment of said *P. haemolytica* genome to prime said amplification;
- (c) isolating said amplified sequences produced in step (b).

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45. Antisense DNA capable of blocking expression of a polynucleotide encoding a TbpA polypeptide of *P. haemolytica* comprising the amino acid sequence as set forth in SEQ ID NO: 2.

46. An isolated fragment of the *P. haemolytica* genome, wherein said fragment modulates the expression of TbpA, wherein said fragment consists of the nucleotide sequence from about 10 to 200 bases in length which is 5' to the open reading frame depicted in SEQ ID NO: 1 or a degenerate variant thereof.

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Sub E³ 47. An organism which has been altered to contain the polynucleotide of claim 30.

18~~48~~ A kit for analyzing samples for the presence of polynucleotides encoding TbpA from *P. haemolytica*, comprising

- (a) at least one polynucleotide containing a nucleotide sequence that will hybridize to a polynucleotide of claim 30 under stringent hybridization conditions, and
- (b) reagent means for detecting said at least one polynucleotide.

49. ~~A method for the treatment of a mammal in need of vaccination, comprising administering to the mammal DNA of claim 31 and expressing said DNA *in vivo*.~~

R126 50~~51~~ A method for the treatment of a mammal infected with *P. haemolytica* said method comprising administering to said mammal DNA of claim 31 and expressing said DNA *in vivo*.

51~~52~~ A vaccine comprising a polynucleotide fragment as in claim 30, said fragment formulated for infecting a host mammal, such that said polynucleotide is expressed *in vivo* to generate an antigenic response.